

Claims

1. (Previously Presented) A motion controlled handheld device comprising:
 - a display having a viewable surface and operable to generate an image;
 - a gesture database maintaining a plurality of gestures, each gesture defined by a motion of the device with respect to a first position of the device, the gestures comprising symbol gestures each corresponding to a character from a preexisting character set;
 - an application database maintaining at least one application;
 - a gesture mapping database comprising a gesture input map for the application, the gesture input map comprising mappings of the symbol gestures to corresponding inputs for the application;
 - a motion detection module operable to detect motion of the handheld device within three dimensions and to identify components of the motion in relation to the viewable surface;
 - a control module operable to load the application, to track movement of the handheld device using the motion detection module, to compare the tracked movement against the symbol gestures to identify a matching symbol gesture, to identify, using the gesture input map, the corresponding input mapped to the matching symbol gesture, and to provide the corresponding input to the application;
 - wherein a set of the inputs map to commands of the application; and
 - wherein the symbol gestures are logically associated with names of the commands.
2. (Original) The motion controlled handheld device of Claim 1, wherein the preexisting character set comprises a written character set.
3. (Original) The motion controlled handheld device of Claim 2, wherein the written character set comprises alphanumeric characters.

4. (Original) The motion controlled handheld device of Claim 2, wherein the written character set comprises pictographic characters.

5. (Canceled)

6. (Canceled)

7. (Original) The motion controlled handheld device of Claim 1, wherein each symbol gesture is defined by a single continuous sequence of accelerations defined with respect to the first position.

8. (Original) The motion controlled handheld device of Claim 1, further comprising:

a first accelerometer operable to detect acceleration along a first axis;

a second accelerometer operable to detect acceleration along a second axis, the second axis perpendicular to the first axis; and

a third accelerometer operable to detect acceleration along a third axis, the third axis perpendicular to the first axis and perpendicular to the second axis; and wherein:

the gesture database further defines each of the gestures using a sequence of accelerations;

the motion detection module is further operable to detect motion of the device using accelerations measured by the first accelerometer, the second accelerometer, and the third accelerometer; and

the control module is further operable to match the accelerations measured by the motion detection module against gesture definitions in the gesture database to identify particular ones of the gestures.

9. (Previously Presented) A method for controlling a handheld device comprising:

- generating an image on a viewable surface of the handheld device;
- maintaining a gesture database comprising a plurality of gestures, each gesture defined by a motion of the device with respect to a first position of the device, the gestures comprising symbol gestures each corresponding to a character from a preexisting character set;
- maintaining an application database comprising at least one application;
- maintaining a gesture mapping database comprising a gesture input map for the application, the gesture input map comprising mappings of the symbol gestures to corresponding inputs for the application;
- loading the application;
- tracking movement of the handheld device in relation to the viewable surface;
- comparing the tracked movement against the symbol gestures to identify a matching symbol gesture;
- identifying, using the gesture input map, the corresponding input mapped to the matching symbol gesture;
- providing the corresponding input to the application;
- wherein a set of the inputs map to commands of the application; and
- wherein the symbol gestures are logically associated with names of the commands.

10. (Original) The method of Claim 9, wherein the preexisting character set comprises a written character set.

11. (Original) The method of Claim 10, wherein the written character set comprises elements selected from a set of alphanumeric characters and a set of pictographic characters.

12. (Canceled)

13. (Original) The method of Claim 9, wherein each symbol gesture is defined by a single continuous sequence of accelerations defined with respect to the first position.

14. (Original) The method of Claim 9, wherein the gesture database further defines each of the gestures using a sequence of accelerations; the method further comprising:

detecting acceleration along a first axis;

detecting acceleration along a second axis, the second axis perpendicular to the first axis; and

detecting acceleration along a third axis, the third axis perpendicular to the first axis and perpendicular to the second axis;

detecting motion of the device using accelerations measured by the first accelerometer, the second accelerometer, and the third accelerometer; and

matching the accelerations against gesture definitions in the gesture database to identify potential indicated ones of the gestures.

15. (Previously Presented) Logic for controlling a handheld device, the logic embodied as a computer program stored on a computer readable medium and operable when executed to perform the steps of:

- generating an image on a viewable surface of the handheld device;
- maintaining a gesture database comprising a plurality of gestures, each gesture defined by a motion of the device with respect to a first position of the device, the gestures comprising symbol gestures each corresponding to a character from a preexisting character set;
- maintaining an application database comprising at least one application;
- maintaining a gesture mapping database comprising a gesture input map for the application, the gesture input map comprising mappings of the symbol gestures to corresponding inputs for the application;
- loading the application;
- tracking movement of the handheld device in relation to the viewable surface;
- comparing the tracked movement against the symbol gestures to identify a matching symbol gesture;
- identifying, using the gesture input map, the corresponding input mapped to the matching symbol gesture;
- providing the corresponding input to the application;
- wherein a set of the inputs map to commands of the application; and
- wherein the symbol gestures are logically associated with names of the commands.

16. (Original) The logic of Claim 15, wherein the preexisting character set comprises a written character set.

17. (Original) The logic of Claim 16, wherein the written character set comprises alphanumeric characters.

18. (Original) The logic of Claim 16, wherein the written character set comprises pictographic characters.

19. (Original) The logic of Claim 15, wherein each symbol gesture is defined by a single continuous sequence of accelerations defined with respect to the first position.

20. (Original) The logic of Claim 15, wherein the gesture database further defines each of the gestures using a sequence of accelerations; the logic further operable when executed to perform the steps of:

- detecting acceleration along a first axis;

- detecting acceleration along a second axis, the second axis perpendicular to the first axis; and

- detecting acceleration along a third axis, the third axis perpendicular to the first axis and perpendicular to the second axis;

- detecting motion of the device using accelerations measured by the first accelerometer, the second accelerometer, and the third accelerometer; and

- matching the accelerations against gesture definitions in the gesture database to identify potential indicated ones of the gestures.

21. (Previously Presented) A motion controlled handheld device comprising:

- means for generating an image on a viewable surface of the handheld device;
- means for maintaining a gesture database comprising a plurality of gestures, each gesture defined by a motion of the device with respect to a first position of the device, the gestures comprising symbol gestures each corresponding to a character from a preexisting character set;
- means for maintaining an application database comprising at least one application;
- means for maintaining a gesture mapping database comprising a gesture input map for the application, the gesture input map comprising mappings of the symbol gestures to corresponding inputs for the application;
- means for loading the application;
- means for tracking movement of the handheld device in relation to the viewable surface;
- means for comparing the tracked movement against the symbol gestures to identify a matching symbol gesture;
- means for identifying, using the gesture input map, the corresponding input mapped to the matching symbol gesture;
- means for providing the corresponding input to the application;
- wherein a set of the inputs map to commands of the application; and
- wherein the symbol gestures are logically associated with names of the commands.

22. (New) A motion control system comprising:

a handheld device that includes a motion detector having a three-axis acceleration sensor and a wireless communication interface that communicates information obtained by the motion detector; and

a processing apparatus that obtains the information through the wireless communication interface to process the information.

23. (New) The motion control system according to Claim 22, wherein the handheld device further comprises a camera and puts an axis of the camera along a third axis perpendicular to each of a first axis and a second axis of the three-axis acceleration sensor.

24. (New) The motion control system according to Claim 22, wherein the handheld device further comprises a camera and puts an axis of the camera in a direction along a longitudinal side of the handheld device.

25. (New) The motion control system according to Claim 22, wherein the handheld device further comprises a camera and puts an axis of the camera of the handheld device along an axis that is parallel to a mounting surface of the three-axis acceleration sensor.

26. (New) The motion control system according to Claim 22, wherein the motion detector of the handheld device includes a processor operable to allow a user to repeatedly selectively engage and disengage motion sensitivity.

27. (New) The motion control system according to Claim 22, wherein the handheld device is operable to provide feedback information to notify a user that a particular motion of the handheld device is recognized as a particular gesture.

28. (New) The motion control system according to Claim 27, wherein the handheld device is operable to provide the feedback information in an audio format.

29. (New) The motion control system according to Claim 27, wherein the handheld device is operable to provide the feedback information in a vibratory format.

30. (New) The motion control system according to Claim 22, wherein the processing apparatus is a DVD player.

31. (New) The motion control system according to Claim 22, wherein the processing apparatus is a television.

32. (New) The motion control system according to Claim 22, wherein the handheld device is connected to other computer peripheral equipment.

33. (New) The motion control system according to Claim 22, wherein the handheld device further comprises a unit that notifies a user of output.

34. (New) The motion control system according to Claim 22, wherein the handheld device further comprises a unit that notifies a battery level.

35. (New) The motion control system according to Claim 22, wherein the handheld device further comprises a unit that notifies a sound.

36. (New) The motion control system according to Claim 22, wherein the handheld device further comprises a user interface.

37. (New) The motion control system according to Claim 22, wherein the handheld device further comprises a unit that gives a vibratory feedback.

38. (New) The motion control system according to Claim 23, wherein the processing apparatus is operable to perform distance measurement based on information from the camera.

39. (New) The motion control system according to Claim 24, wherein the processing apparatus is operable to perform distance measurement based on information from the camera.

40. (New) The motion control system according to Claim 25, wherein the processing apparatus is operable to perform distance measurement based on information from the camera.

41. (New) The motion control system according to Claim 22, wherein the processing apparatus comprises a calendar application.

42. (New) The motion control system according to Claim 22, wherein the processing apparatus is operable to allow a user to reset a base reference position of the handheld device.

43. (New) The motion control system according to Claim 22, wherein the processing apparatus is operable to provide electronic mail functionality.

44. (New) The motion control system according to Claim 22, wherein the processing apparatus is operable to provide a navigation menu.

45. (New) The motion control system according to Claim 22, wherein the processing apparatus is operable to provide time and date information.

46. (New) The motion control system according to Claim 22, wherein the processing apparatus further comprises a gesture mapping database.

47. (New) The motion control system according to Claim 22, wherein the processing apparatus further comprises a gesture database.

48. (New) The motion control system according to Claim 47, wherein the gesture database is operable to record a gesture made by a user.

49. (New) The motion control system according to Claim 22, wherein:
the handheld device further comprises a camera; and
the processing apparatus is operable to detect a tilt and translation motion based on information obtained by the three-axis acceleration sensor and the camera.

50. (New) A method for controlling a motion control system including a handheld device and a processing apparatus, the method comprising:

detecting movement of the handheld device by using the motion detector having a three-axis acceleration sensor:

communicating through the wireless communication interface to the processing apparatus the movement obtained by the motion detector; and

processing the obtained movement by the processing apparatus.